eyeheight

SA-3G SD/HD/3G

safe-area generator

user manual

User Manual Versions

Versions	Changes	Date	S/W Ver
0.02	Provisional Version	27/02/08	
1.00	First Released Version	21/04/08	1.6
1.10	Moveable user Box and Onscreen aspect ratio calculation added	17/06/09	2.10
1.20	Changed Title, Expanded section on cage uploader	28/9/09	2.11
1.30	Change to new single piece 3G compatible hardware	04/06/10	2.11
1.40	Change to SA-3G on screen menu operation	02/04/12	3.00
1.50	Change to new SD/HD/3G version	05/07/12	4.00

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

Table of Contents

1 System Overview 6

1.1 The SA-3G product 6

1.2 Associated Equipment for the SA-3G 6

2 Installation. 7

3 Operation 8

3.1 General flexiPanel control 8

3.1.1 Device buttons 8

3.1.2 Menu navigation 8

3.1.3 Parameter adjustment of a green menu 9

3.1.4 Parameter adjustment of a red menu 9

3.1.5 Information display 9

3.2 Primary safe-area generator control and OSD (On-Screen Menu) 9

3.2.1 Safe Area Generator ON/OFF 9

3.2.2 Selecting a User Preset 10

3.2.3 Selecting a Preset Safe Area 10

3.2.4 Saving a new user preset. 11

3.2.5 Hiding safe areas in the safe area On Screen Menu. 12

3.3 Special purpose cursor generator control 13

3.3.1 Text height measurement 13

3.3.2 User Box 13

3.3.3 Strobe 14

3.3.4 Cursor 14

3.3.5 Circle 14

3.4 GPI/Tally Set-up. 15

3.4.1 On-Board GPI's 15

3.4.2 On-Board Tally 15

3.4.3 Configuring tallies on the etherBox. 15

4 The SA-3G Menu Set. 16

5 Technical Appendix 30

5.1 GPI/Tally/RS232 technical information. 30

5.1.1 GPI Inputs. 30

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH

Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

5.1.2 Tally Output. 31
5.1.3 RS232 Interface. 31
5.2 CageUploader Software 32
5.2.1 Connecting CageUploader 32
5.2.2 Defining New cursors. 32
5.2.3 Defining New video standards. 33
5.2.4 Upload/Download/Saving/Loading 33
5.3 Technical Specification. 33

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

Table of Figures

Figure 1-1 - Front view of **etherBox** (**FB-9E**) fitted with **FF-9** blank panel 6

Figure 1-2 **FP-9 flexiPanel** can be fitted on the **FB-9E** or remotely using an **RR-9** kit. 6

Figure 2-1 Connections to the **SA-3G** 7

Figure 3-1 **flexiPanel** (**FP-9**) controls.....8

Figure 3-2 Types of menus showing their characteristic colours.....8

3-3 OSD User Preset Selection.....10

3-4 OSD Preset Cursor Selection.....1098

3-5 Saving the User Preset. 11

3-6 Naming the User Preset.....12

Figure 5-1 Typical GPI Input 30

Figure 5-2 Tally Output.....31

Figure 5-3 Tally interface to relay. 31

Figure 5-4 Cage Uploader Software.....32

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH

Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

1 System Overview

1.1 The SA-3G product

The **SA-3G** is a safe area generator designed to operate in SD, HD and 3G Formats. The unit processes all SD and HD formats and 3G 1080p 50/60 level A.

The **SA-3G** can display up to 4 simultaneous safe-areas/cursors and each safe-area/cursor has independent controls for style, colour and opacity. All safe-areas have independently controllable centre markers. A further graphic generator will generate circles.

1.2 Associated Equipment for the SA-3G

The **SA-3G** processing card requires the following in order to set up and operate the unit.

1. An **etherBox** chassis (**FB-9E**). Up to six **SA-3G** units and be installed in one chassis.
2. A **flexiPanel** control surface such as an **FP-9** or an **FP-10**.

Figure 1-1 - Front view of etherBox (FB-9E) fitted with FF-9 blank panel

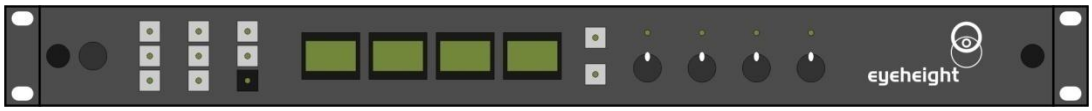


Figure 1-2 FP-9 flexiPanel can be fitted on the FB-9E or remotely using an RR-9 kit.

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

2 Installation.

This unit requires HD-SDI , SD-SDI or 3G digital video connections to the BNC connectors. Optionally RS232, GPI's and a Tally may also be connected normally using CAT5e cable. The user should refer to the **etherBox** user manual for installation of the **SA-3G** into a chassis and connection of flexiPanels (FP-9). This will also describe the process of acquiring a processing card (in this case the **SA-3G**) by the **flexiPanel** which is necessary to access the menu structure within the **SA-3G**.

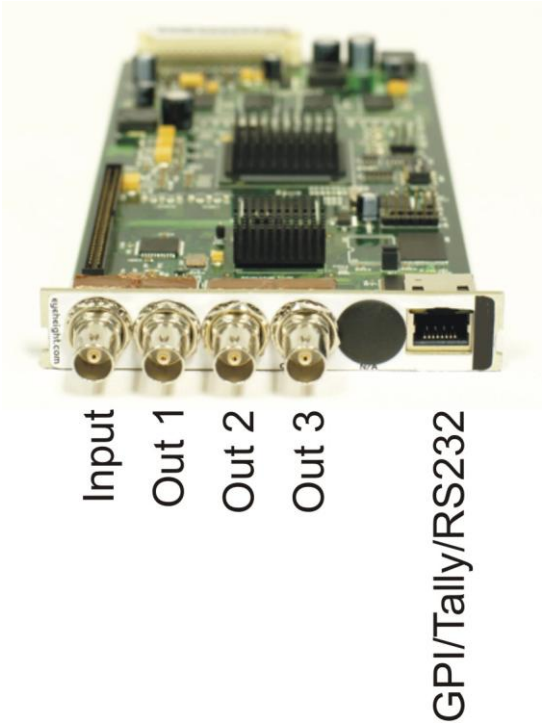


Figure 2-1 Connections to the SA-3G

See Section 5.1 for details of the GPI/Tally/RS-232 pinout.

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

3 Operation

All **geNETics** products are controlled using a generic menu system. This generic menu system is operated from a generic panel (**flexiPanel FP-9** or **FP-10**). An **FP-9** is shown below (An **FP-10** has the same controls in a different layout style). For information about acquiring processor cards for control on a **flexiPanel** see the **etherBox** manual section 4. The SA-3G card differs slightly from the generic operation in order to allow for simple use of the OSD menus however. These differences are explained in section Primary safe-area generator control below.

3.1 General flexiPanel control

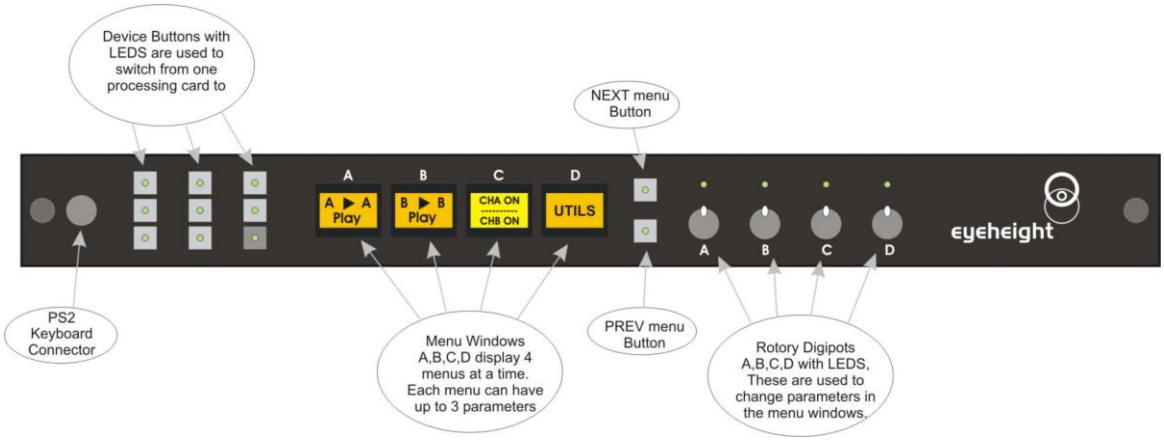

Device Buttons with LEDS are used to switch from one processing card to
NEXT menu Button
A
B
C
D
A ▶ A Play
B ▶ B Play
CHA ON
CHB ON
UTILS
eyeheight
PS2 Keyboard Connector
Menu Windows A,B,C,D display 4 menus at a time. Each menu can have up to 3 parameters
PREV menu Button
Rotory Digipots A,B,C,D with LEDS, These are used to change parameters in the menu windows.

Figure 3-1 flexiPanel (FP-9) controls.

3.1.1 Device buttons

There are 8 grey device buttons. These switch between the currently selected processing cards installed in the **etherBox**. It is also possible to select cards in another chassis if the I-Bus is connected to the other chassis.

3.1.2 Menu navigation

There are two ways to navigate from menu to menu.

1. Using the NEXT ane PREV buttons. These are for “Flat” menu structures. The NEXT and PREV LEDS will flash while further menus are available.
2. Using a GOTO ANOTHER MENU LCD button (as below coloured orange). This is more common and will take you straight to a relevant set of menus. Examples are the Play and UTILS menu’s shown on Figure 8.

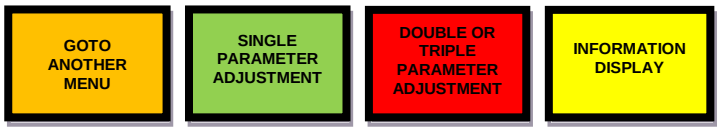


Figure 3-2 Types of menus showing their characteristic colours

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

3.1.3 Parameter adjustment of a green menu

A green menu is one in which there is only one adjustable parameter. There are two ways to adjust the parameter in a green menu.

1. Press the green LCD button. This will increment the value in that window. This is most frequently done when the menu parameter is Textural for example switching a parameter between ON and OFF. In this case a button press is most natural.
2. Use the Rotary digipot (A,B,C or D) to adjust the parameter in the respective LCD window (A,B,C or D). The direction and speed of rotation enable numeric values to be set easily.

3.1.4 Parameter adjustment of a red menu

A red menu is one in which there is two or three adjustable parameters. In this case it is necessary to first select the menu by pressing the red button. When the red button is pressed it will turn green and either two or three of the rotary digipot LEDS will flash indicating that the respective rotary digipot will operate the respective parameter.

3.1.5 Information display

A Yellow menu (Which on most panels does look a light orange!) is one in which only information is displayed. An example of this is the software version display.

3.2 Primary safe-area generator control and OSD (On-Screen Menu)

The top level menu shown below gives direct access to the selection menus for the three primary safe-area generators.

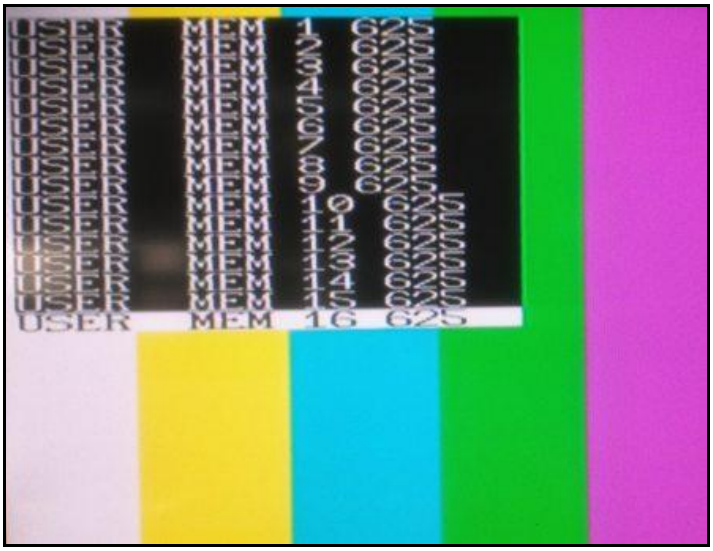
3.2.1 Safe Area Generator ON/OFF

The top level menus are in LCD windows A,B,C and D. These correspond to the four digipots labelled A,B,C and D on the FP-9 panel. If the user presses LCD A the unit toggles between hiding and showing the cursors (SAG ON and SAG OFF)

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

3.2.2 Selecting a User Preset

Moving Digipot “B” will activate the OSD showing all 16 user presets on the display. This is shown below.

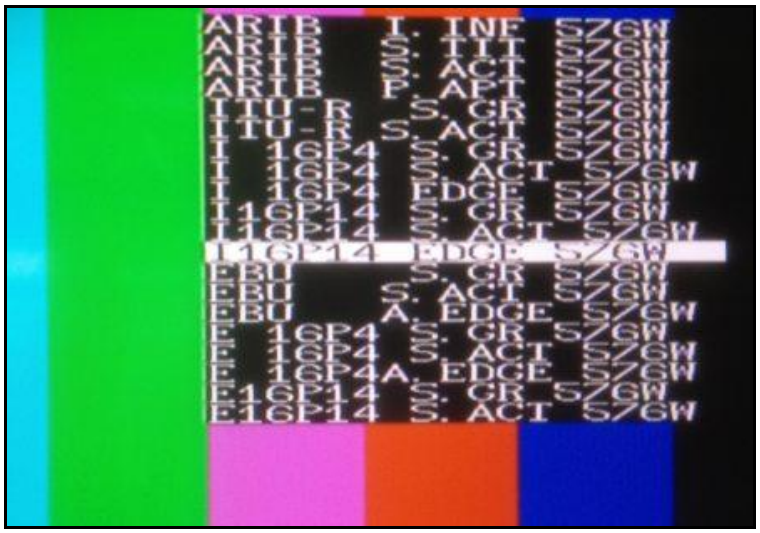


3-3 OSD User Preset Selection

To select a user preset move the on-screen cursor to the appropriate memory and the PUSH the digipot in until it clicks. A star (*) will be shown beside the selected memory

3.2.3 Selecting a Preset Safe Area

To select a preset safe area, move digipot “C”. This will activate the OSD showing all the safe areas appropriate for the input line standard. These will depend upon the line standard that is currently input.Only 20 cursors are shown on each form. If there are more cursors simply scroll down and more will appear. An example of this is shown below.


ARIB I. INE 576W
ARIB S. III 576W
ARIB S. ACT 576W
ARIB P. APT 576W
ITU-R S. GR 576W
ITU-R S. ACT 576W
I 16P4 S. GR 576W
I 16P4 S. ACT 576W
I 16P4 EDGE 576W
I16P14 S. GR 576W
I16P14 S. ACT 576W
I16P14 EDGE 576W
EBU S. GR 576W
EBU S. ACT 576W
EBU A. EDGE 576W
E 16P4 S. GR 576W
E 16P4 S. ACT 576W
E 16P4A. EDGE 576W
E16P14 S. GR 576W
E16P14 S. ACT 576W

3-4 OSD Preset Cursor Selection

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

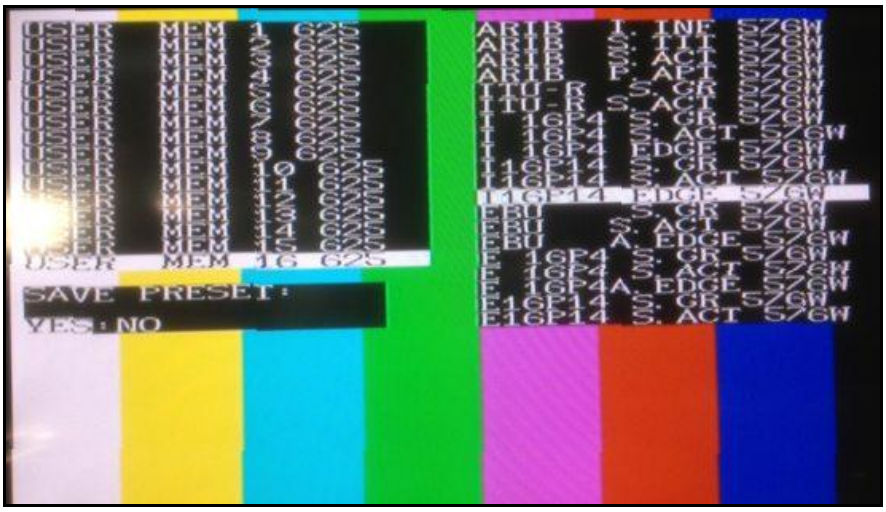
To select a safe area, move the “on-screen cursor” to the appropriate safe area and the PUSH the digipot in until it clicks. This will then activate the selected safe area and display it on screen. A star (*) will be shown beside the selected safe area.

Up to 3 different safe areas can be selected on the screen. Pressing the digipot “C” on a cursor already selected will de-select that cursor. Trying to select a 4th cursor (when 3 have already been selected) will deselect the cursor that was last selected and select the new one.

The user can still select another cursor feature by pressing LCD button D and selecting one of the many Special Screen Utils such as a user box, circle, cross-hairs and so on.

3.2.4 Saving a new user preset.

Once the user has selected a cursor or set of cursors (and possibly a special screen utility) this configuration can be stored in a user memory. User memories depend on the line standard of the input signal and there are 16 user memories for each of the four basic line standards (525, 625, 1080, 720). To save a configuration as a user preset, select the memory you wish to store this under by selecting with digipot “B” and then press LCD Button B. The screen will change as below.



3-5 Saving the User Preset.

In this case the user will store the current configuration of cursors into the current default named “USER MEM 16 625”.

Now using digipot B move the cursor over the “YES” and press the digipot until it clicks.

A new screen will appear enabling you to name the preset as below.

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

3-6 Naming the User Preset

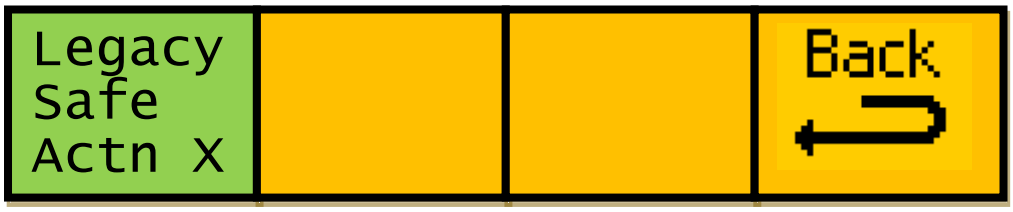
To name the user preset use digipot “B” to move the roving cursor over any character on the two top lines of this form and Press Digipot “B”. This will enter a character into the user name under the static cursor. To move the static cursor simply move the roving cursor over the NAME section of the form and Press Digipot “B”.

Once the user has named the preset select the roving cursor over the text END in the form and press digipot “B”.

3.2.5 Hiding safe areas in the safe area On Screen Menu.

Because of the quantity of the cursors in some line standards (for example in 625 there are, at the time of writing, 42 cursors that can be selected). It is often desirable to hide cursors which the user either never or very rarely uses. To do this Press the following sequence from the top menu on the LCD buttons.

Special Screen Utils→MORE→MORE→MORE→Setup OSD.



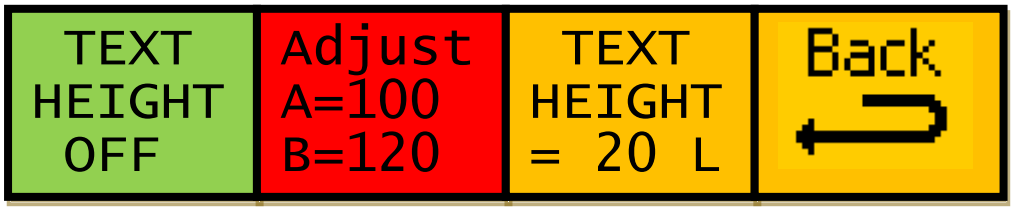
The above menu should be displayed along with an on screen display. In this case now to HIDE a cursor, select the cursor using digipot “A” and the Press digipot “A” until it clicks. An “X”

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

3.3 Special purpose cursor generator control

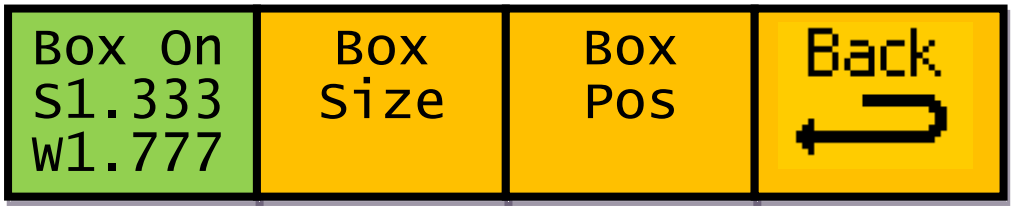
The special purpose cursor provides real-time user configurable safe-area, text height measurement, pixel strobe, cursor functionality and onscreen aspect ratio information. The special purpose cursor layer is composited on top of the primary safe-area layers.

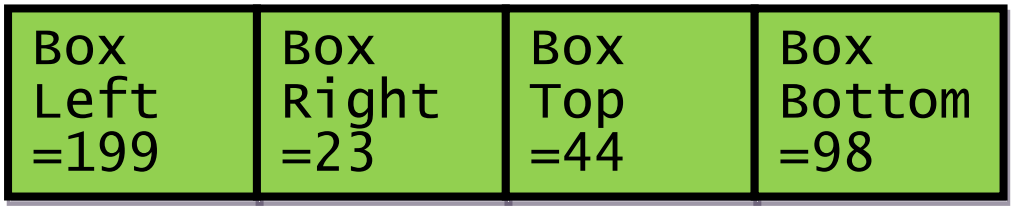
3.3.1 Text height measurement



Pressing the first button or adjusting digi-pot 1 will toggle the visibility of the text height measurement cursor. If another special purpose cursor is being displayed it will be removed. The text height measurement cursor displays a horizontal opaque stripe across the full width of the image. The “Adjust” menu is red to indicate that it is an unopened nested menu. Pressing the “Adjust” menu will open it (the “Adjust” menu will turn green and the first “TEXT HEIGHT” menu will go red) The A value can no be adjusted using the first digi-pot and the B value can be adjusted using the second. Align the top and bottom of the opaque band with the top and bottom of the text to be measured and read of the text height in lines from the third menu. The “Adjust” menu can be closed by pressing any of the menu buttons.

3.3.2 User Box



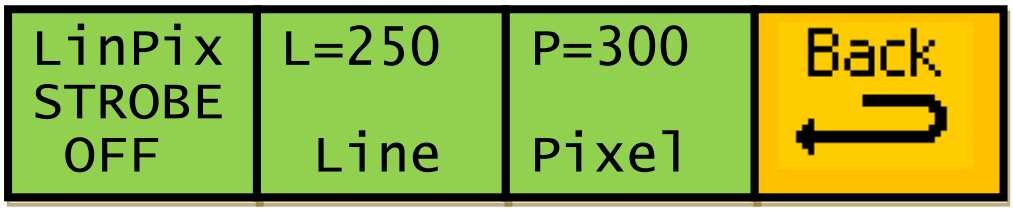


eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

Pressing the first menu button or adjusting digi-pot 1 will toggle the user box display through Off, On and On+ which displays the user box and its centre marker. If another special purpose cursor is in use it will be removed. The W and S values indicate the aspect ratio of the user box when viewed in standard aspect ratio (4:3) and widescreen aspect ratio (16:9). For HD signals only the W value is active.

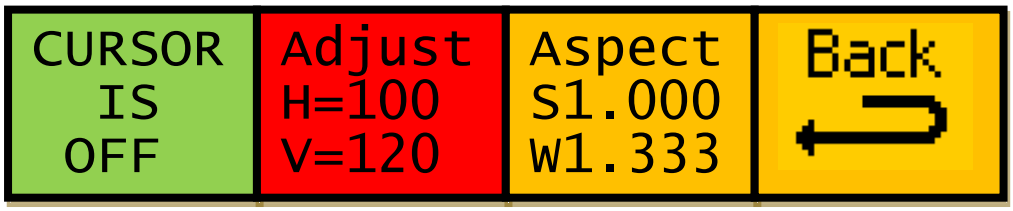
The position and size of the user box can be adjusted by accessing the box size and box pos menus.

3.3.3 Strobe



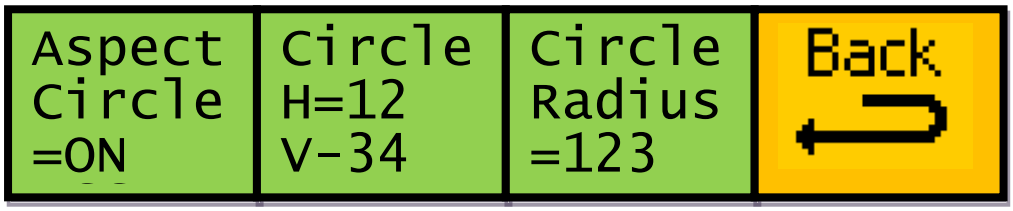
Pressing the first menu button or adjusting digi-pot 1 will toggle the strobe on and off. If another special purpose cursor is being displayed it will be removed. The selected line and pixel can be adjusted using digi-pots 2 and 3.

3.3.4 Cursor



Pressing the first menu button or adjusting digi-pot 1 will toggle the cursor on and off. If another special purpose cursor is being displayed it will be removed. The width and height of the cursor can be adjusted by opening the “Adjust” menu and using digi-pot 1 and 2. The W and S values indicate the aspect ratio of the user box when viewed in standard aspect ratio (4:3) and widescreen aspect ratio (16:9). For HD signals only the W value is active.

3.3.5 Circle



This will operate the circle generator. These menus enable the circle to be switched on and off. The position can be adjusted by the Circle H & V menus and the radius by the Circle Radius menu.

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

3.4 GPI/Tally Set-up.

3.4.1 On-Board GPI's

The **SA-3G** is a **geNETics** product. The **geNETics** system uses generic Input/Output cards which have 3 GPI's and one Tally output. These have been used in this system as opportunistic GPI's which may be of use to the user. They do not provide a comprehensive GPI control but may be used as part of a GPI solution in conjunction with the GPI's on the **etherBox**.

The operation of the two GPI's used is explained in the table below.

Table 1 - On-Board GPI settings

	GPI1	GPI2	GPI3	Effect
OFF	1	1	1	The GPI's have no effect
Master Hide	0	1	1	All cages will be hidden.
Master Show	1	0	1	Selected cages will be displayed.

0=Short to ground or logic 0V, 1=Pulled up internally or logic +3→+12V

3.4.2 On-Board Tally

The single tally output has two modes:

1. Indicate that one or more cages are being displayed.
2. Indicate that no cages are being displayed..

The operation of these is explained in the table below.

Table 2 - On-Board Tally settings.

	Tally State	Meaning
ON	0	A cage is being displayed
OFF	1	No cages are being displayed

0=Transistor ON, shorting to ground, 1=Transistor OFF, open.

3.4.3 Configuring tallies on the etherBox.

The **SA-3G** can also make use of the three configurable tallies on the **etherBox** chassis. The **etherBox** chassis has three usable tallies. These are 11,12 and 13. Set up these menus for the box number and tally number for channel A and channel B. If you do not wish to use a tally set the box number to 0. Refer to the **etherBox** man

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

4 The SA-3G Menu Set.

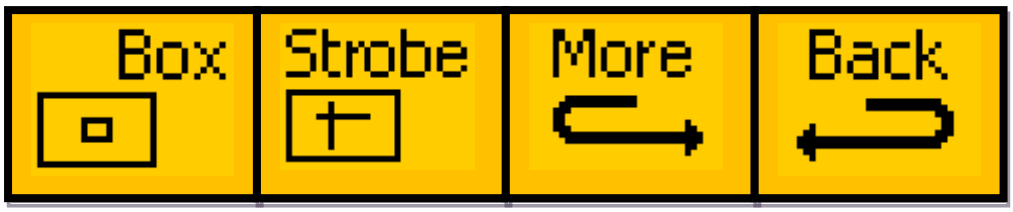
The following set of menus defines the operational controls of the SA-3G.

Menus 00-03 Top Level Menus

Menu Num.	Heading	Function
0	On/Off	This setting switches the cursor display on and off.
1	Select User Memories	This action is explained in detail in section Primary safe-area generator control and OSD (On-Screen Menu)
2	Cursor Selection	This action is explained in detail in section Primary safe-area generator control and OSD (On-Screen Menu)
3	Special Screen Utils	Press this button to take you to the menu 04. This is where all the other cursor utilities reside.

Pressing the "NEXT" button while the Top Level Menus are displayed will take you to menus 04-07.

Menus 04-07 Menus

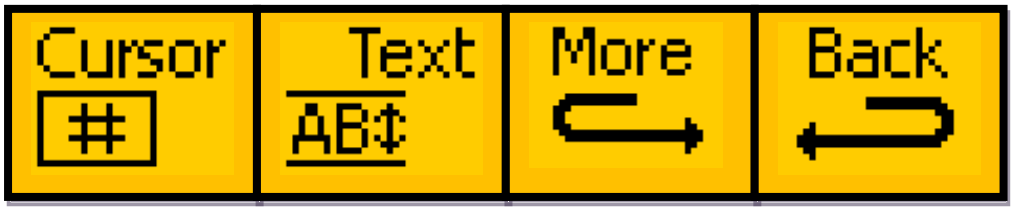


Menu Num.	Heading	Function
4	Box	Press this button to take you to the User Box menus (User definable cage)

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

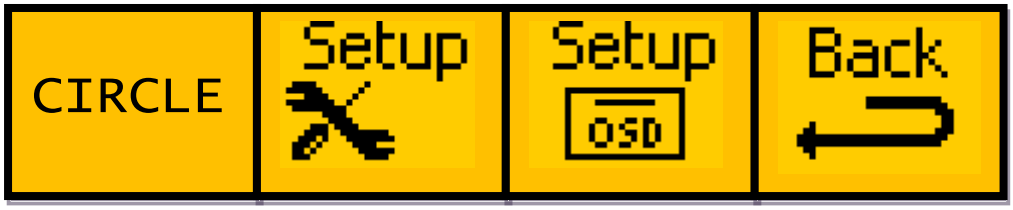
		(Go To Menu 96).
5	Strobe	Press this button to take you to the Strobe menus (Go To Menu 92).
6	More	Takes you to menu 8
7	Back	Back to top menu

Menus 08-11 Menus Cage



Menu Num.	Heading	Function
8	Cross Hair	This takes you to the centralised dual cross hair system. (menu 88)
9	Text Height	This takes you to the text height measurement system (menu 84)
6	More	Takes you to menu 12
7	Back	Back to menu 4

Menus 12-15 Menus Cage 1

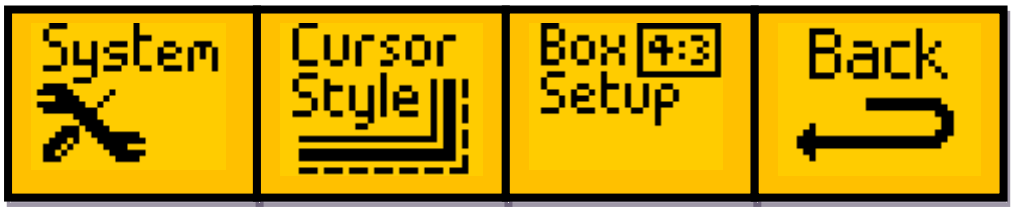


Menu Num.	Heading	Function
12	Circle	Sends you to the circle utility (Menu 80)
13	Setup	Sends you to the general setup utility (Menu 16)
14	OSD Setup	Sends you to the OSD setup utility for hiding cursors.

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

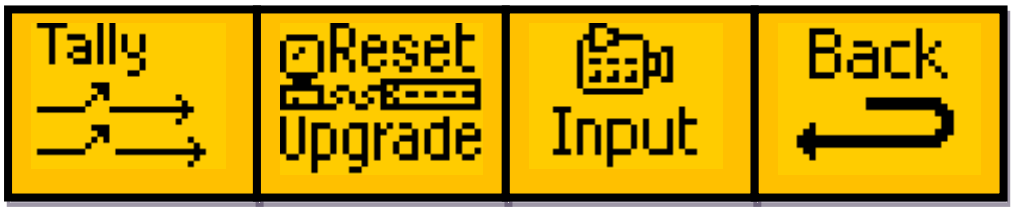
15	Back	Press this button to take you back to menu 8.

Menus 16-19 Menus Cage 2



Menu Num.	Heading	Function
16	System	This takes you to further system menus. (menu 20)
17	Cursor Style	This takes you to the cursor style setup menus. (menu 60)
18	Box Setup	This takes you to the user box configuration menus. (menu 56)
19	Back	Press this button to take you back to Menu 12

Menus 20-23 Menus Cage 2

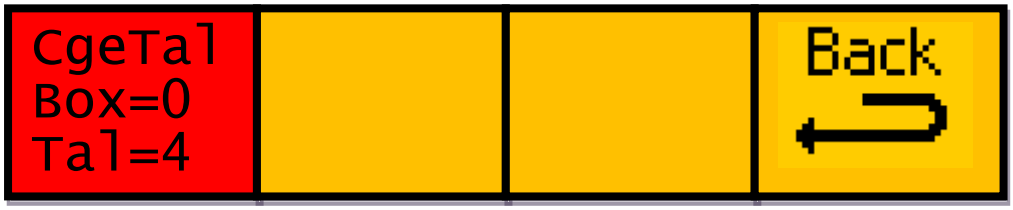


Menu Num.	Heading	Function
20	Tally	This will take you to the Tally setup menu (Menu 24)
21	Reset/Upgrade	This will take you to the Rest and software upgrade system menus. (Menu 36)
22	Input	This takes you to the input type selection. (Menu 48)

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

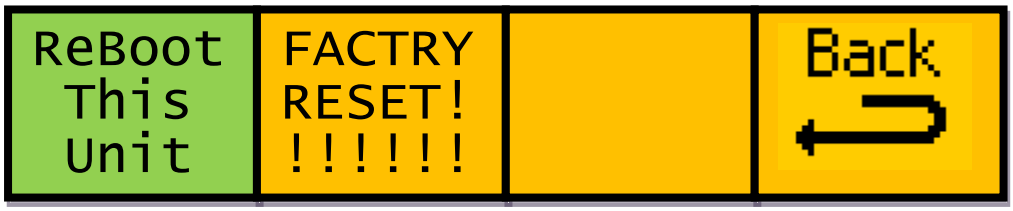
23	Back	Press this button to take you back to Menu 16

Menus 24-27 Menus Cage 3



Menu Num.	Heading	Function
24	Cage Tally Box 0-16 Tally 0-99	If a cage is displayed a tally will be set. This menu allows you to select the Box and the tally Number that will indicate this.
25		
26		
27	Back	Press this button to take you back to Menu 20

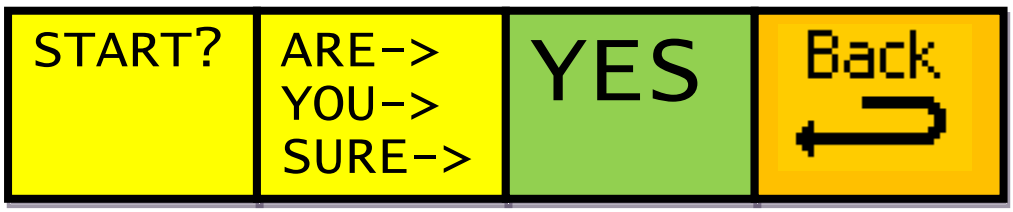
Menus 28-31 Menus Cage 3



Menu Num.	Heading	Function
28	Reboot this unit	This applies a warm restart to the unit. It is the software equivalent of recycling the power.
29	Factory Reset	Pressing this will take you to the Factory Reset Last Chance menu. (Go To Menu 44).
30		
31	BACK	Go to Menu 36

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

Menus 32-35 Menus User Controls.

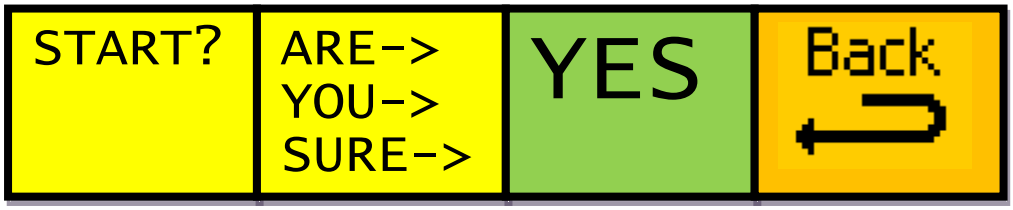


Menu Num.	Heading	Function
32	----	----
33	----	----
34	YES, I want to do a factory reset!	This will Start a factory Reset of the unit. This will Wipe ALL Cages and Settings that may have been previously set-up. Only do this if you are setting up from scratch, or there is a problem with your unit.
35	BACK	Go To Menus 28

Menus 36-39 Menus User Controls

Menu Num.	Heading	Function
36	Upgrade Software	Pressing this will take you to the Software Upgrade last chance menu. (Go To Menu 40).
37	Software Version	This window displays the software version.
38	Resets	Pressing this will take you to the Reset Options. (Go To Menu 28).
39	BACK	Go to Menu 20

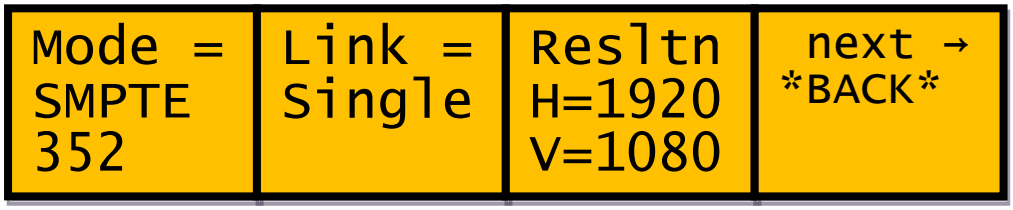
Menus 40-43 Menus User Controls



eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

Menu Num.	Heading	Function
40	----	----
41	----	----
42	YES, I want to start a software upgrade	This will Start a software upgrade of the unit. You will need to follow the instructions in the etherbox (FB-9E) manual or the “Flasher User Manual” to correctly perform this procedure. This will Wipe ALL Logos and Settings that may have been previously set-up. The unit MUST be installed in an FB-9E to perform an upgrade.
43	BACK	Go to Menu 36

Menus 48-51 Menus Input Status



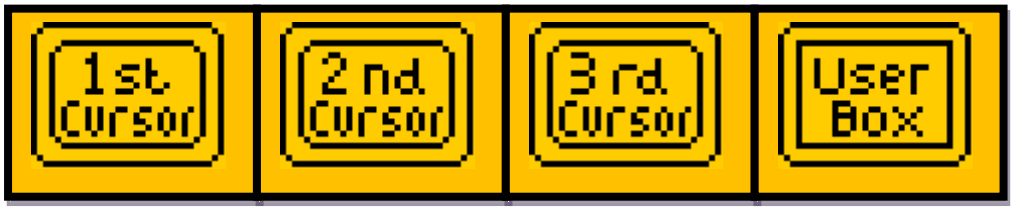
Menu Num.	Heading	Function
48	Mode 0-1 SMPTE 352 MANUAL	This Menu allows you to select whether Link, Colour Mode, Bit Depth and Dynamic Range will be interpreted from the SMPTE 352 packet or set manually by the operator. (NOT ADJUSTABLE IN SINGLE LINK)
49	Link If in MANUAL mode 0-1 Single Dual	This menu allows you to select Single or Dual Link Mode if Menu 60 is set to MANUAL. Will indicate the link mode if SMPTE 352 packets are being received. (NOT ADJUSTABLE IN SINGLE LINK)
50	Resolution	This menu displays the Horizontal and Vertical resolution of the detected video standard.
51	Back	Press this button to take you back to Menus 04-07. Press the “NEXT” button to take you to Menu 20

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

Menus 56-59 On-Screen Text setup for Aspect Ratio User Box Display

Menu Num.	Heading	Function
56	Onscreen Text 0 – 1 Off On	If the user box is on, this menu allows the text size to be altered.
57		
58	Denominator 1 - 15	If the user box is on, this menu allows the denominator to be chosen
59	Back	Go to Menu 16.

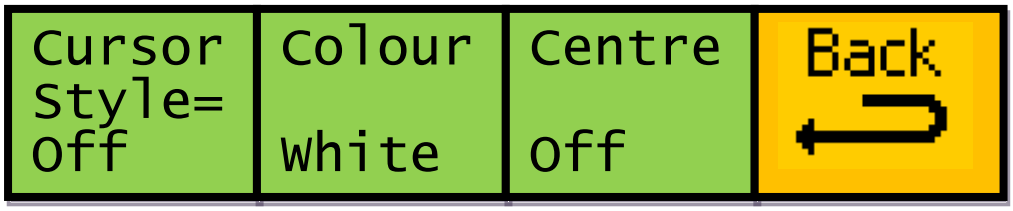
Menus 60-63 Cursor Type Parameters (Colour/Style)



Menu Num.	Heading	Function
63	1st Cursor	This takes you to the parameters for the first cursor. (menu 64)
64	2nd Cursor	This takes you to the parameters for the second cursor. (menu 68)
65	3rd Cursor	This takes you to the parameters for the third cursor. (menu 72)
66	User Box	This takes you to the parameters for the user box. (menu 76)

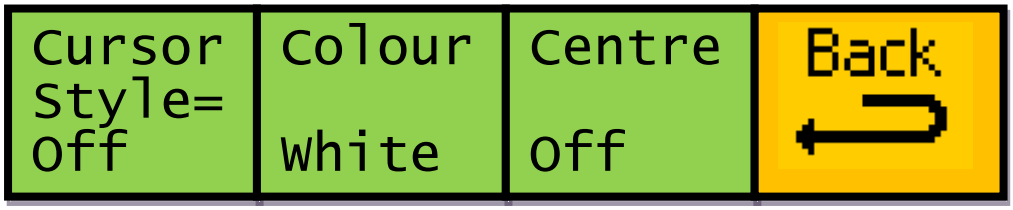
eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

Menus 64-67 Menus Cage 1



Menu Num.	Heading	Function
64	Style 0-5 Off Dash 1 Dash 2 Thick Thin Solid	Use this menu to select the desired cage style. Off is not selectable manually.
65	Colour 0-7 White Yellow Cyan Green Magenta Red Blue Black	Use this menu to select a colour for the selected cage.
66	Centre 0-1 Off On	Use this menu to select whether the centre marker of the cage is to be displayed.
67	Back	Go to Menu 60.

Menus 68-71 Menus Cage 2

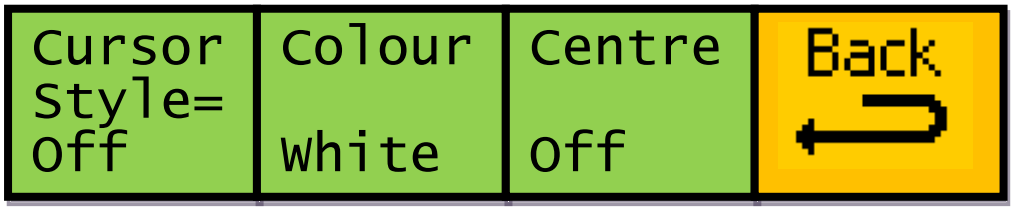


Menu Num.	Heading	Function
68	Style 0-5 Off Dash 1 Dash 2 Thick	Use this menu to select the desired cage style. Off is not selectable manually.

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

	Thin Solid	
69	Colour 0-7 White Yellow Cyan Green Magenta Red Blue Black	Use this menu to select a colour for the selected cage.
70	Centre 0-1 Off On	Use this menu to select whether the centre marker of the cage is to be displayed.
71	Back	Go to Menu 60.

Menus 72-75 Menus Cage 3

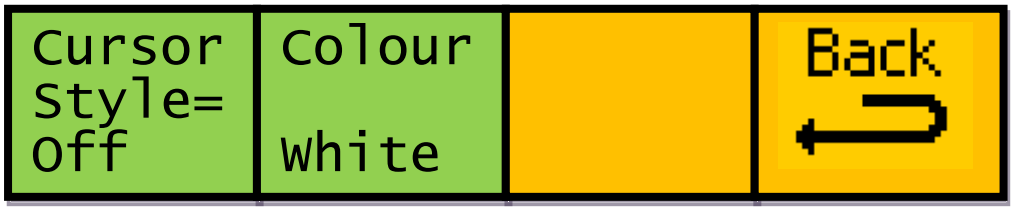


Menu Num.	Heading	Function
72	Style 0-5 Off Dash 1 Dash 2 Thick Thin Solid	Use this menu to select the desired cage style. Off is not selectable manually.
73	Colour 0-7 White Yellow Cyan Green Magenta Red Blue Black	Use this menu to select a colour for the selected cage.
74	Centre	Use this menu to select whether the

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

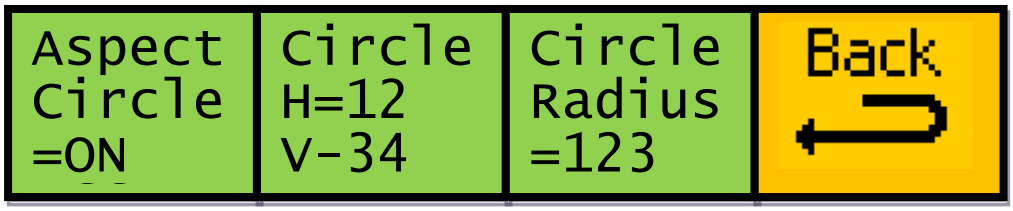
	0-1 Off On	centre marker of the cage is to be displayed.
75	Back	Go to Menu 60.

Menus 64-67 Menus user box



Menu Num.	Heading	Function
76	Style 0-5 Off Dash 1 Dash 2 Thick Thin Solid	Use this menu to select the desired cage style. Off is not selectable manually.
77	Colour 0-7 White Yellow Cyan Green Magenta Red Blue Black	Use this menu to select a colour for the selected cage.
78		
79	Back	Go to Menu 60.

Menus 80-83 Menus user box

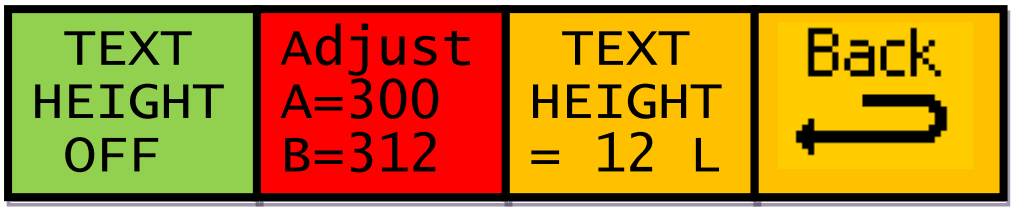


Menu Num.	Heading	Function
80	Off (0) On (1)	This switches the circle on and off

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

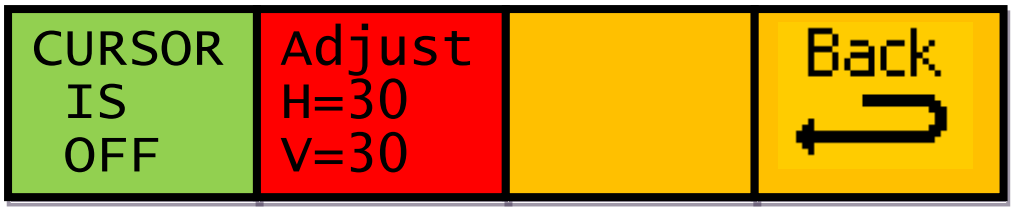
81	H and V position	Horizontal and vertical position of the circle.
82	Radius	Adjust the radius of the circle.
83	Back	Go to Menu 12.

Menus 84-87 Menus User Controls



Menu Num.	Heading	Function
84	Text Height 0-1 OFF ON	Use this menu to turn the text height reference lines on or off.
85	Text Top / Bottom	Use this menu to select the desired position of the top and bottom reference lines. Position the top line to the top of the text to be measured and the bottom line to the bottom of the text.
86	Text Height	This menu shows the height of the text (the distance between the top and bottom reference lines) in Video Lines.
87	Back	Press this button to take you back to Menu 8.

Menus 88-91 Menus User Controls

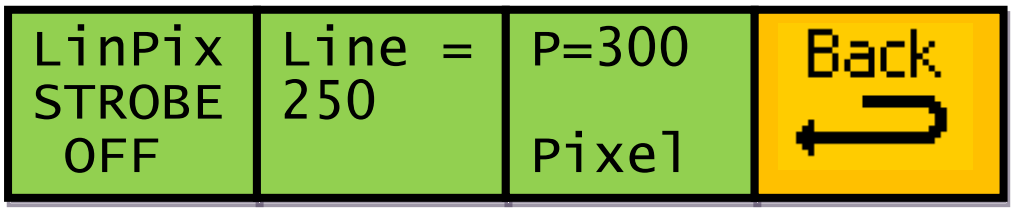


Menu Num.	Heading	Function
88	Cursor 0-1 OFF ON	This Menu allows you to select whether Strobe will be off, or on. The strobe can be used to locate the line and pixel position of a position on the screen.

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

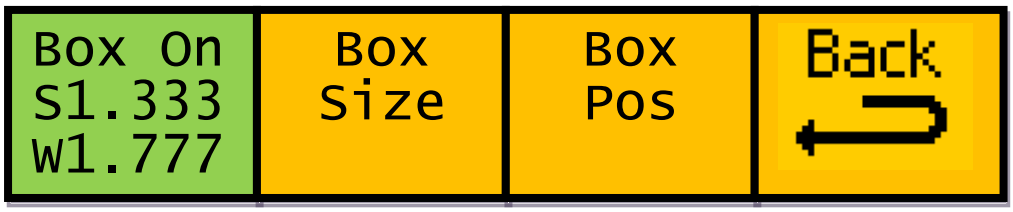
89	Adjust	This menu allows you to position the line position of the strobe.
90	Blank	This menu allows you to position the pixel position of the strobe.
91	Back	Press this button to take you back to Menu 8.

Menus 92-95 Menus User Controls



Menu Num.	Heading	Function
92	Strobe 0-1 OFF ON	This Menu allows you to select whether Strobe will be off, or on. The strobe can be used to locate the line and pixel position of a position on the screen.
93	Line	This menu allows you to position the line position of the strobe.
94	Pixel	This menu allows you to position the pixel position of the strobe.
95	Back	Press this button to take you back to Menu 4.

Menus 96-99 Menus User Controls

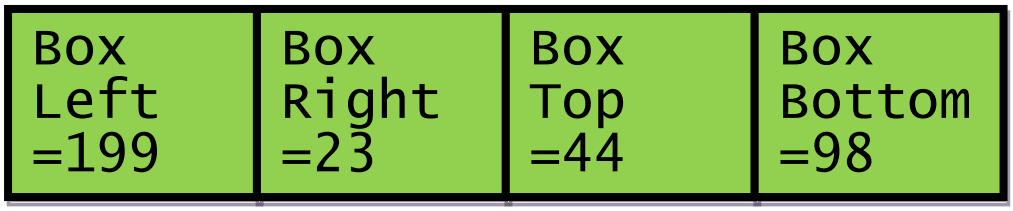


Menu Num.	Heading	Function
96	BoxOff BoxOn BoxOn+	This menu switches the Box on and off. There is also an option for the box on with a centre cross
97	Box Size	Go to the Box Size menus (menu 100)
98	Box	Go to the Box Position menus (menu

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

	Position	104)
99	Back	Press this button to take you back to Menu 4.

Menus 100-103 Menus User Control.



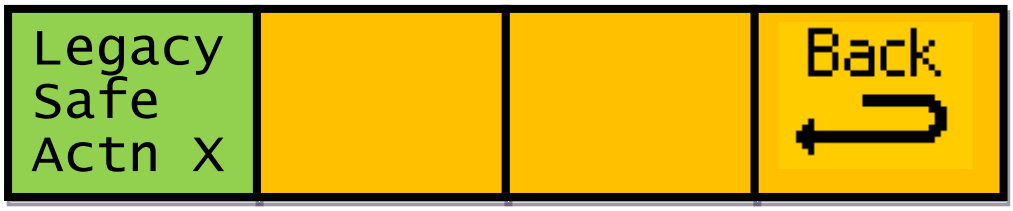
Menu Num.	Heading	Function
100	Box Left	This is the left box side position
101	Box Right	This is the right box side position
102	Box Top	This is the top box side position
103	Box Bottom	This is the bottom box side position

Menus 104-107 Menus User Control.

Menu Num.	Heading	Function
104	Box H Offset	This is the left box side position
105	Box V Offset	This is the right box side position
106		
107	Back	Go back to menu 96

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

Menus 108-111 Menus User Control.



Menu Num.	Heading	Function
108	Hide List	List of hhidden safe areas. See Hiding safe areas in the safe area On Screen Menu.
109		
110		
111	Back	Go back to menu 96

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

5 Technical Appendix

5.1 GPI/Tally/RS232 technical information.

The Processor card has an RJ-45 connector with GPI, Tally and RS232 connections as shown below:

1	GPI-1	White/Orange
2	GPI-2	Orange
3	GPI-3	White/Green
4	GND	Blue
5	RS232 TX	White/Blue
6	RS232 RX	Green
7	Not Used	White/Brown
8	Tally (open collector)	Brown

Table 3 GPI/Tally and RS232 pin-out on RJ-45.

5.1.1 GPI Inputs.

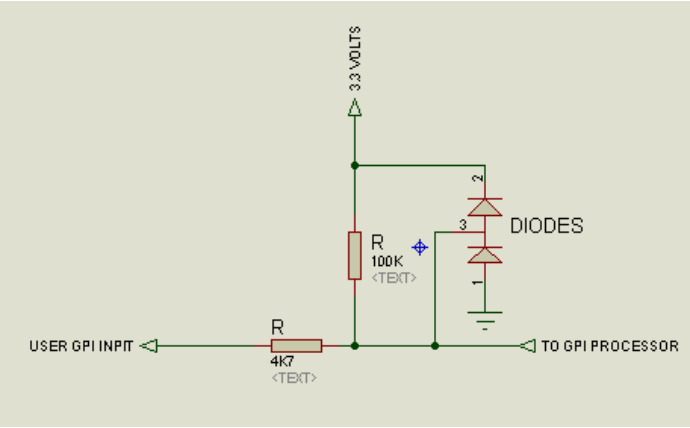


Figure 5-1 Typical GPI Input

GPI's are normally activated by a short to ground. The GPI has its own internal pull-up resistor. If the user is interfacing with logic then

- Vhigh = +12V>Vin>+3V
- Vlow = +0.3V>Vin>0V

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

5.1.2 Tally Output.

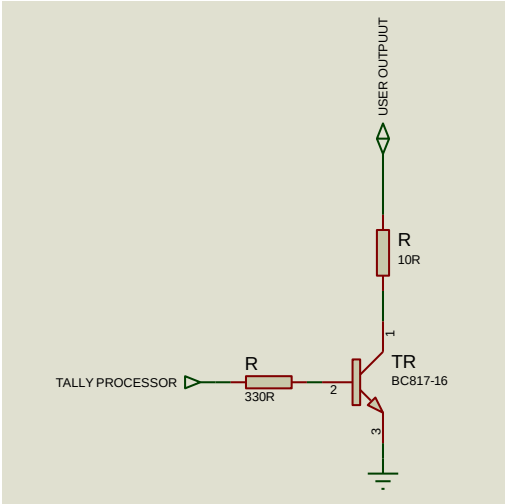


Figure 5-2 Tally Output

The user Tally Output is an open collector transistor. The drain should be <200mA. An electro-mechanical relay can be operated by this as shown in the example below.

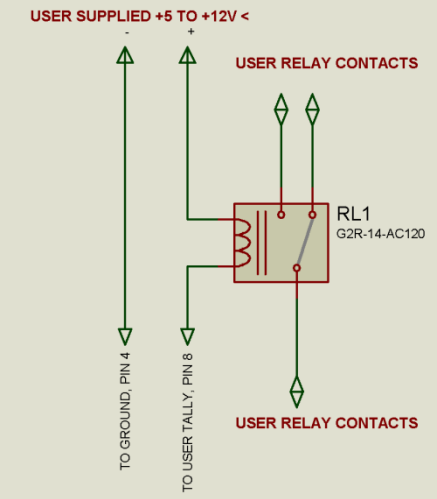


Figure 5-3 Tally interface to relay.

5.1.3 RS232 Interface.

This loosely follows the pin convention of EIA-561 which is a standard for RS232 on an RJ45 cable. Only TX, RX and Signal ground (pin 4) are implemented. For the **SA-3G** the following RS232 parameters apply:

- 115Kbaud
- 8 Bits, no parity
- 1 Stop bit.

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

5.2CageUploader Software

The CageUploader software allows the editing, loading, capturing, addition and deletion of cages. However, if Factory Reset (menu number 96) is performed any changes will be lost as the default cages (see section **Error! Reference source not found.**) will be reloaded.

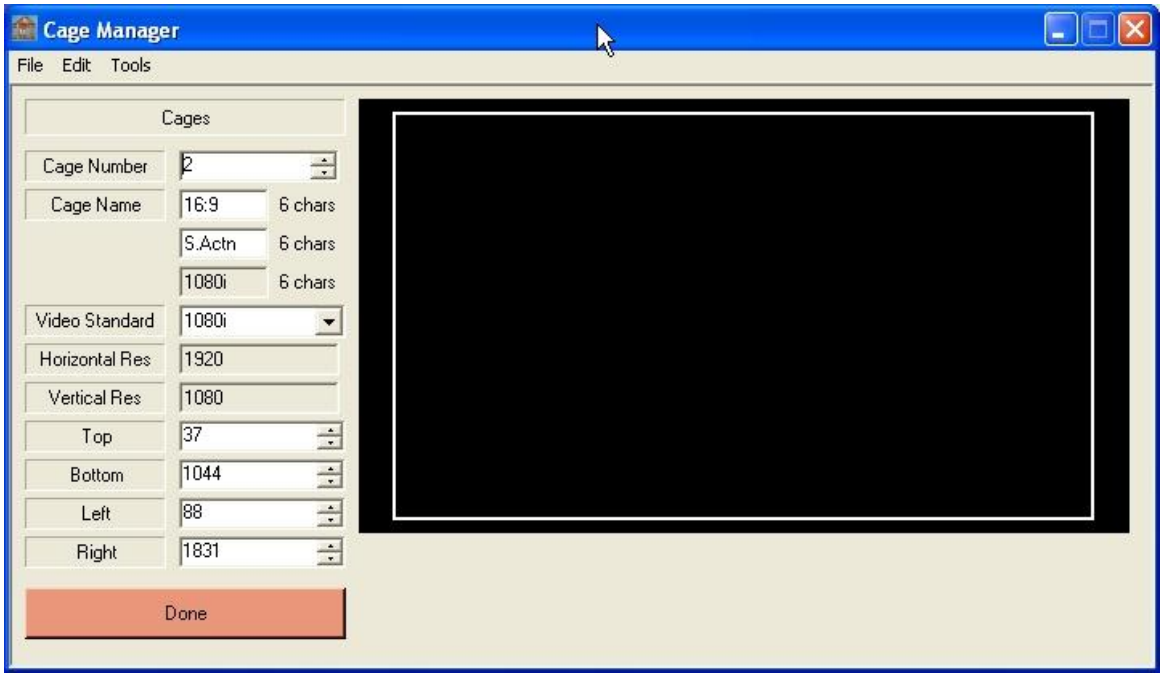


Figure 5-4 Cage Uploader Software

5.2.1 Connecting CageUploader

You can connect directly to the unit using the RJ-45 connector on the rear of the actual SA-3G card module. A specialised cable will be required. The connections for this are as follows:

RJ45 pin number	9W D type (Fem) pin number
4	5
5	2
6	3

5.2.2 Defining New cursors.

Once connected using this cable run CageUploader. Under the "Tools→Comm Port Settings" menu, select the "SA-3G card" drop down option and select the correct COM PORT for your computer. The NID does not matter. Then under "Edit" select "Add/Edit Cage". At this point you can use the "cage number" field to step through the current Safe Areas installed. You will see a representation of this appear on the right hand side of the application. You will need to step as far

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

as cage 123 to find a “Spare” location to define a new safe area. You next need to select the video standard that the sake area is defined in. You can then name the safe area and define the Pixel and line numbers (in progressive format).

5.2.3 Defining New video standards.

The SA-3G unit is ready for emerging line standards and it is possible to define a new line standard if the situation arises. Select “Edit→Add/Edit Video Standard”. Scrolling through the standards you will see the ones already defined. Scroll to the next “Blank” to add a new video standard.

5.2.4 Upload/Download/Saving/Loading

Under the File menu you can Open either from a computer file or from a device (“device” meaning uploading the current safe areas stored in an SA-3G unit). Similarly you can save the current set of safe areas to a file or to a device (“device” meaning downloading the safe areas to an SA-3G).

5.3 Technical Specification.

When in SDI mode:

SDI Inputs (270 Mbps, 800mV p-p±10% into 75Ω)	1 Input to SMPTE 259M Link A In, Link B In
SDI Outputs (270 Mbps, 800mV p-p±10% into 75Ω)	3 Outputs to SMPTE 259M Out1, Out2, Out3
SDI cable equalisation	At least 200m of PSF 1/3 Return loss better than 18dB, 5 MHz – 270 Mhz

When in HD-SDI mode:

HD-SDI Inputs (1.845 Gbps, 800mV p-p±10% into 75Ω)	1 Input to SMPTE 292M,
HD-SDI Outputs (1.485 Gbps, 800mV p-p±10% into 75Ω)	3 Outputs to SMPTE 292M, Link A Out1, Out2, Out3
HD-SDI cable equalisation	At least 100m of Belden 1694A

When in 3G mode:

HD-SDI Inputs (2.99 Gbps, 800mV p-p±10% into 75Ω)	1 Input to SMPTE 425M,
HD-SDI Outputs (2.99 Gbps, 800mV p-p±10% into 75Ω)	3 Outputs to SMPTE 425M, Out1, Out2, Out3

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

HD-SDI cable equalisation	At least 80m of Belden 1694A

General:

Ancillary Data	Passes all ancillary data in vertical and horizontal blanking except for CRC reclalculation.
Control Surfaces	Option of local or remote **FP-9** control panel.
Chassis	**FB-9E etherBox** 1U enclosure
Supported Formats	720x576/50i 720x487/60i 720x507/60i 1280x720/23.98p 1280x720/24p 1280x720/25p 1280x720/29.97p 1280x720/30p 1280x720/50p 1280x720/59.94p 1280x720/60p 1920x1080/23.98p 1920x1080/23.98psf 1920x1080/24p 1920x1080/24psf 1920x1080/25p 1920x1080/50i 1920x1080/29.97p 1920x1080/59.94i 1920x1080/30p 1920x1080/60i 1920x8080/50p 1920x8080/60p
Delay	<10us
Power Supply	100-240v AC. Less than 50W power consumption with 6 **SA-3G** units installed.
FB-9E Dimension	Width 442mm Height 44mm Depth 300mm
Weight	<3Kg
Temperature	<25°C ambient, <55°C internal
Humidity	Recommended 40 to 55% Limits 20 to 80%

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com